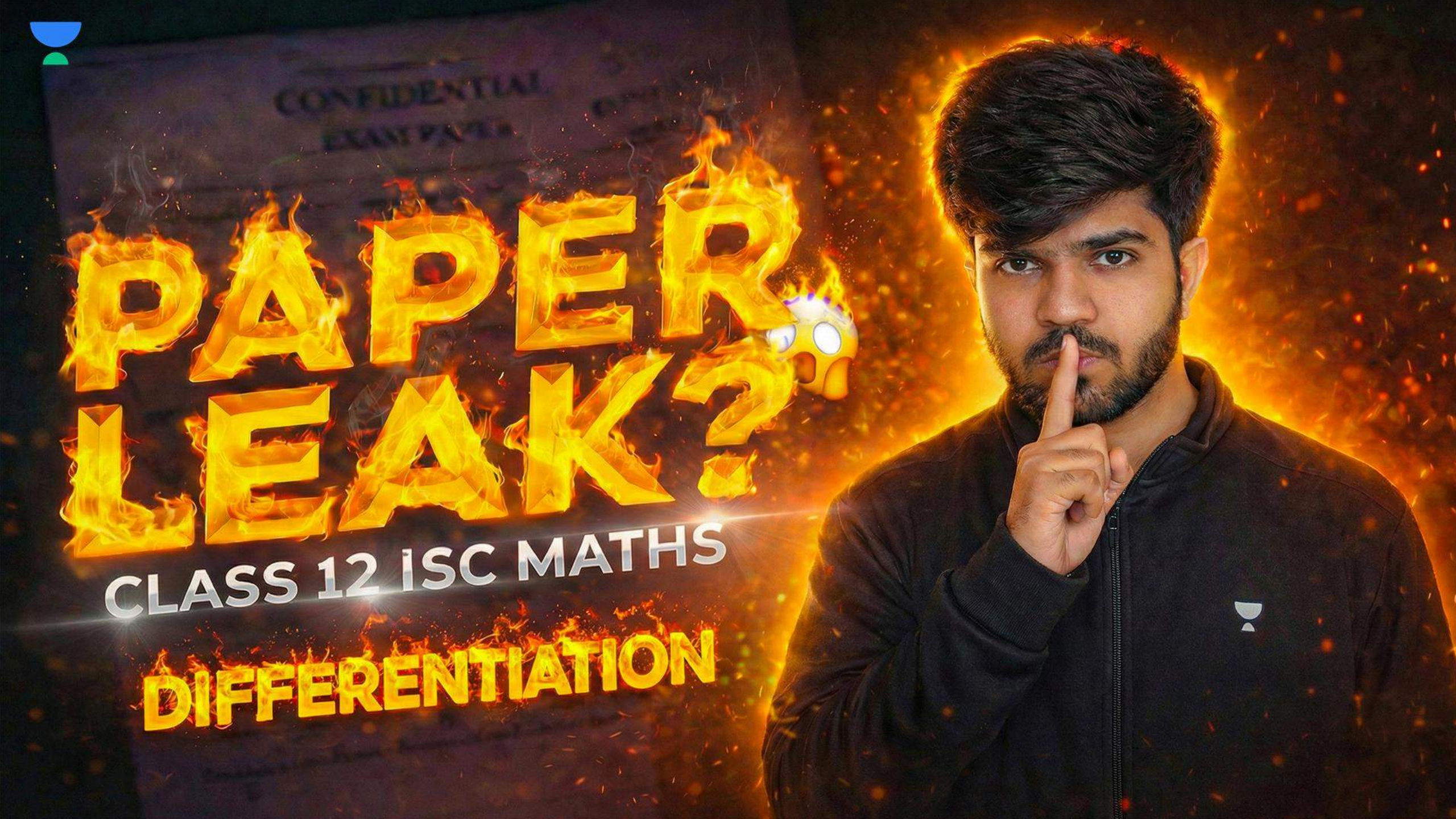
CONFIDENTIAL
EXAM PAPER
PAPER LEAK?
CLASS 12 ISC MATHS
DIFFERENTIATION

If $\sqrt{x} + \sqrt{y} = \sqrt{a}, then \frac{dy}{dx}$ *is*

GOURAV BHAIYA

If $y = \tan^{-1}\left(\frac{1-cosx}{sinx}\right), then \frac{dy}{dx}$ *is*

GOURAV BHAIYA

$$y = \log\left(x + \sqrt{x^2 + a^2}\right) \text{ w.r.t. } x$$

GOURAV BHAIYA

$x^{\sin x} + (\sin x)^x$ w.r.t. x

GOURAV BHAIYA

If $y = x + tanx, then\ prove\ that\ cos^2 x \frac{d^2y}{dx^2} - 2y + 2x = 0$

GOURAV BHAIYA

$2^{\cos^2 x}\ w.r.t.\ \cos^2 x.$

GOURAV BHAIYA

If $\tan^{-1}(x^2 + y^2) = a^2, then\ find\ \frac{dy}{dx}$

GOURAV BHAIYA

If $\sqrt{1-x^2}+\sqrt{1-y^2}=a(x-y), then\ prove\ that\ \frac{dy}{dx}=\sqrt{\frac{1-y^2}{1-x^2}}$

GOURAV BHAIYA

If $x = a\left(cos\theta + \log tan\frac{\theta}{2}\right)$ and $y = sin\theta, then$ $find$ $\frac{d^2y}{dx^2}$ at $\theta = \frac{\pi}{4}$

GOURAV BHAIYA

$$\tan^{-1}\frac{\sqrt{1-x^2}}{x}\ w.r.t.\cos^{-1}\left(2x\sqrt{1-x^2}\right), x\ \epsilon\ \left(\frac{1}{\sqrt{2}},1\right)$$

GOURAV BHAIYA

Find $\frac{dy}{dx}, if\ y = x^{tanx} + \frac{\sqrt{x^2+1}}{2}$

GOURAV BHAIYA

If $x = e^{\frac{x}{y}}$, then prove that $\frac{dy}{dx} = \frac{x-y}{xlogx}$.

GOURAV BHAIYA

If $y = log\left(\sqrt{x} + \frac{1}{\sqrt{x}}\right)^2$, *then show that* $x(x+1)^2 \frac{d^2y}{dx^2} + (x+1)^2 \frac{dy}{dx} = 2$.

GOURAV BHAIYA

If $x\sqrt{1+y}+y\sqrt{1+x}=0, then\ prove\ that \frac{dy}{dx}=-\frac{1}{(1+x)^2}$

GOURAV BHAIYA

If $y = 5cosx - 3sinx, prove\ that \frac{d^2y}{dx^2} + y = 0$

GOURAV BHAIYA